

## HOV System Development in California

Arthur T. Leahy, Los Angeles County Metropolitan Transportation Authority-Presiding

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### Overview of Statewide HOV Programs and Issues

*Jerry Baxter, California Department of Transportation*

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I would like to review the history of HOV development in California, highlight a few milestones, and share our experiences with you. The use of HOV facilities in California started in 1970 with HOV bypass lanes at the toll plazas on the Oakland Bay Bridge in the San Francisco area.

In 1973, the El Monte Busway opened. Jointly funded by FHWA, FTA, Caltrans, and the Regional Transit District (RTD), this facility was initially opened only to buses. It was later opened to carpools with three or more persons. Although this project continues to be successful, it is interesting to note that it has not been duplicated anywhere else in the state. The El Monte Busway shows that buses and carpools can operate on the same facility.

1976 was the next HOV milestone with the infamous diamond lane on the Santa Monica Freeway. This project, which I am sure you all know about, converted the number one general purpose lane in each direction into HOV lanes for carpools of three or more people (3+). In hindsight, there are a number of things that probably should have been done differently on this project. For example, there was no marketing or public information program and the 3+ vehicle occupancy level may not have been appropriate. The project, which was implemented partially in response to the first regional air quality plan, may have set back HOV development in California ten years.

By 1983, there was only 35 miles of HOV lanes in California. Between 1985 and 1990 there was a resurgence of HOV development in the state. By 1990,

there were some 220 miles of HOV lanes in California, and by the end of 1994, there will be 470 miles in operation. The Los Angeles region has embraced HOV facilities. The reaction is very similar to the experience with ramp metering. When meters were first introduced, there was some resistance, but now they are widely accepted. HOV lanes have also been institutionalized, as long as they are addition lanes.

In 1993, Caltrans adopted the Urban Freeway concept to treat the urban freeway system uniformly throughout the state. This approach was adopted based on the recognition that the state highway system should look and operate the same throughout the state. Characteristics of urban freeways include ramp metering, changeable message signs, television surveillance, service patrols, highway advisory radio, and HOV lanes. Thus, the HOV concept is imbedded in the urban freeway system in California.

There was a further realization that the freeway system in the five county region around Los Angeles should look and operate the same. Thus, there was a need for the three Caltrans Districts in this area to work together and coordinate activities. Working with the counties and other agencies, an HOV master plan was developed for the region. Similar planning efforts are also underway in the San Francisco Bay area and the San Diego area. Current projections are that the ultimate California HOV lane system may reach 500 miles.

Thus, it appears that HOV lanes in California have become institutionalized. A major effort now is to ensure that the necessary support facilities and services are in place. These include park-and-ride lots, transit services, ridesharing programs, direct connectors, access ramps, enforcement, and other elements. These are all critical components to a successful HOV system. Part of this effort is to establish a closer working relationship with the Los Angeles County Metropolitan Transportation Authority (LACMTA) and other transit agencies. Houston, which you will hear more about during the luncheon speech today, provides an excellent example of a close working partnership between the state department of transportation and the local transit agency.

The HOV lanes in California and the Los Angeles area represent a mix of facilities. Although concurrent flow HOV lanes are the most common, buffer widths between the HOV lanes vary from 1- to 4-feet. The vehicle occupancy requirements on all facilities are two or more persons (2+), except the El Monte Busway, which is three or more (3+). Signing is relatively uniform

throughout the state. The use of HOV bypass lanes at metered freeway entrance ramps is also being expanded.

A number of evaluation studies have been conducted on the HOV lanes in the state and monitoring efforts are ongoing. The El Monte Busway, which carries as many people during the peak-periods as the three adjacent freeway lanes, provides one of the best examples of the effectiveness of HOV lanes. There are still a number of issues that will need to be addressed. These include what to do when capacity is reached at the 2+ vehicle occupancy level, additional enforcement activities, and other concerns.

I hope you enjoy the conference this week and have a pleasant stay in Los Angeles. Thank you.

### **Los Angeles Experience with Bus/HOV Operations** *Dana Woodbury, Los Angeles County Metropolitan Transportation Authority*

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Thank you, Art. It is a pleasure to have the opportunity this morning to discuss the experience with bus and HOV operations in the Los Angeles area. As you know, we recently had the opportunity to test these systems during the Northridge earthquake. Buses and HOV lanes played vital roles in the emergency efforts, especially along the Santa Monica Freeway. This integral artery, which is the world's most heavily traveled freeway, immediately became the focus for traffic mitigation activities. While the freeway underwent extensive repairs, the left lane was converted into an HOV lane to help traffic flow more freely. This provided carpools with significant travel time savings over SOVs, which had to use local streets in some areas.

Buses were another critical element in the overall response to the earthquake. Within three days, 22 buses were added to routes on the west side and the San Fernando Valley. Within ten days, the MTA created, augmented, or rerouted 27 bus lines to assist earthquake affected commuters. Other transit operators-including the Los Angeles Department of Transportation, Santa Monica Municipal Transit, and Foothill Transit-joined this effort. The extra buses, along with the detour routes and the HOV lanes, made travel from the west side to downtown Los Angeles much easier.

The MTA and Caltrans are working hard to resolve the mobility problems in the Los Angeles area. The MTA's integrated transportation system includes 400 miles of light rail transit (LRT) and subways, which link up with Metrolink, the intercounty commuter rail network, and approximately 1,800 buses. A multimodal approach is needed, however, which encompasses both transit and

freeway elements. HOV lanes are an especially important part of this mix in an automobile oriented society like Los Angeles. HOV lanes for buses, carpools, and vanpools are playing an ever increasing role in Los Angeles' freeway system.

Today, approximately 67 miles of freeway HOV lanes are in operation in Los Angeles County. These facilities carry an average of 1,250 vehicles an hour during the peak-periods. The average vehicle occupancy level on these facilities is 2.3 persons per vehicle. The facilities represent the joint efforts of Caltrans and the MTA, and have been funded through a combination of federal, state, and local sources. Earlier this year the MTA Board committed \$3 15.9 million for construction of the next 88 miles of HOV lanes on nine freeway segments throughout the county. These lanes are expected to be open by 1998. Next month the MTA will release a request for proposal (RFP) for the development of an HOV Master Plan. The plan will help integrate HOV lanes with park-and-ride lots and transit centers. The different freeway corridors will be analyzed to determine where HOV lanes are needed and where cost-effective facilities can be developed. Freeway to freeway HOV connectors will also be examined.

The newly opened Glen Anderson (Century or I-105) Freeway includes direct freeway-to-freeway HOV connections. These ramps appear to be a big bit with carpools. The HOV connectors represent another good example of Caltrans and the MTA working together. The MTA has almost completed the 20-mile LRT METRO Green Line, which is located in the center of the I-105 Freeway. The Green Line will intersect the METRO Blue Line, which runs 22 miles from Long Beach to downtown Los Angeles. When the Green Line opens next year, commuters from El Sagundo and Norwalk will have direct access to downtown by both HOV lanes and METRO. A further bonus will be added in 1995 when Caltrans completes the Harbor Freeway Transitway. This facility, which includes a 3-mile elevated structure, will provide a connection to the El Monte Busway at Union Station. Thus, HOVs will be able to travel from San Pedro to the San Gabriel Valley. Construction will also begin this summer on an HOV project on the Route 118-Sini Valley Freeway.

Jerry mentioned the El Monte Busway, which has been in operation for 20 years. For a long time, this single successful project was Los Angeles' only HOV project. It is still working today as some 18,000 daily passengers ride 12 bus routes using the HOV lane. Clearly, adding more HOV lanes will help address mobility problems in the area. By providing a regional HOV system, Caltrans and the MTA are building an integrated network that will help accommodate the mass transit and transportation